(11) **EP 1 375 983 A3**

(12)

EUROPEAN PATENT APPLICATION

(88) Date of publication A3: 10.03.2004 Bulletin 2004/11

(51) Int Cl.⁷: **F16J 15/32**

(43) Date of publication A2: 02.01.2004 Bulletin 2004/01

(21) Application number: 03253861.3

(22) Date of filing: 18.06.2003

(84) Designated Contracting States:

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HU IE IT LI LU MC NL PT RO SE SI SK TR
Designated Extension States:

AL LT LV MK

(30) Priority: 27.06.2002 US 187204

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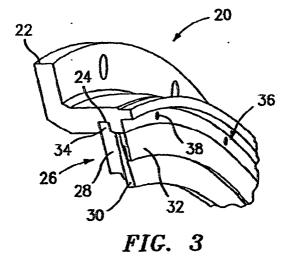
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(54) Replaceable brush seal elements

(57) The present invention relates to replaceable brush seal assemblies 20 for use with turbines such as industrial gas turbines. In accordance with the present invention, a brush seal assembly comprises a flange 22, a brush seal 26 mounted to the flange 22, and retainers 38 preventing rotation of the brush seal 26 relative to

the flange 22. A method of repairing a brush seal having a back plate 28, side plate 32, and bristles 30 is also disclosed. The method comprises the steps of removing the side plate 32 and the bristles 30 from the back plate 28, and securing a second brush seal to the back plate 28.





EUROPEAN SEARCH REPORT

Application Number EP 03 25 3861

		ERED TO BE RELEVAN	— —	CLASSISION OF THE
Category	Citation of document with in of relevant pass	idication, where appropriate, ages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.CI.7)
X	EP 1 130 294 A (GEN 5 September 2001 (2 * column 3, line 34 figures *		1-4,6	F16J15/32
X	US 6 382 632 B1 (CH 7 May 2002 (2002-05 * column 3, line 44 figures *		1-3, 5-12,20	
X,D	US 5 704 760 A (BOU		1,14,15	
Α	6 January 1998 (199 * column 3, line 45 figures *	8-01-06) - column 4, line 51;	16	
Α	US 5 474 305 A (FLO 12 December 1995 (1 * abstract; figures	995-12-12)	14,15	
				TECHNICAL FIELDS SEARCHED (Int.Cl.7)
				F16J
	The present search report has t	peen drawn up for all claims		
	Place of search	Date of completion of the search	h	Examiner
	THE HAGUE	16 January 200)4 Nai	rminio, A
X : part Y : part doc	ATEGORY OF CITED DOCUMENTS icularly relevant if taken alone icularly relevant if combined with anot urnent of the same category inological background	E , earlier pater after the filin ner D , document c L : document c	ited in the application ited for other reasons	olished on, or n S
O : non	inological background i-written disclosure rmediate document		the same patent fam	

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO.

EP 03 25 3861

This annex lists the patent family members relating to the patent documents cited in the above–mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

16-01-2004

Patent document cited in search report		Publication date		Patent family member(s)	Publication date	
ΕP	1130294	А	05-09-2001	US EP JP	6540231 B1 1130294 A2 2001355737 A	01-04-2003 05-09-2001 26-12-2001
US	6382632	B1	07-05-2002	EP JP	1235010 A2 2002310304 A	28-08-2002 23-10-2002
US	5704760	A	06-01-1998	US DE EP EP JP WO	5630590 A 69719173 D1 1227219 A2 0890018 A1 2000508732 T 9736094 A1	20-05-1997 27-03-2003 31-07-2002 13-01-1999 11-07-2000 02-10-1997
US	5474305	Α	12-12-1995	DE DE EP WO JP JP	69121244 D1 69121244 T2 0549652 A1 9205378 A1 3254214 B2 6501298 T	12-09-1996 20-03-1997 07-07-1993 02-04-1992 04-02-2002 10-02-1994

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82